

Be it known that Mary Kay Bitton has invented a new and useful

Illuminated Bubble Wand

of which the following is a specification:

5                   Field of the Inventions

The inventions described below relate the field of bubble wands that are capable of being illuminated.

Background of the Inventions

Bubble wands have traditionally been relatively simple  
10 plastic wands with rings attached at one end. Children are entertained by placing the bubble wand within a bubble mixture container, removing it, and then blowing bubbles. Although the market for bubble wands is large, continued sales volume depends on innovative designs, multiple functionality, and marketing  
15 techniques for bubble wands. Recent developments in the bubble industry provide for glow in the dark bubble solutions. Currently, glow in the dark bubble solutions require the child to place the solution next to a light to activate the solution, and when the effect wears off, the child is required to run into  
20 and out of the light to activate the solution and then appreciate the result in the dark. A need exists for a convenient means for activating the solution by a light source.

Summary

The device described below provides for illumination of a  
25 bubble wand. The bubble wand may be contained within a transparent or opaque container. The illuminated bubble wand

can be used to provide amusement to children, especially for outdoor play on summer evenings. The illuminated bubble wand can also facilitate location of the bubble wand when it is separated from its container. The illuminated bubble wand can also act as a convenient light source for activating the agent in a glow-in-the-dark bubble solution.

### Brief Description of The Drawings

Figure 1 illustrates a container with an illuminated bubble wand disposed within a container where the shaft has two bubble forming attachments mounted at each end of the shaft;

Figure 2 illustrates a container with an illuminated bubble wand secured to the container of the cap;

Figure 3 illustrates a container with an illuminated bubble wand that protrudes a distance from the container of the cap; and

Figure 4 illustrates a bubble wand where the shaft of the wand is a luminescent light stick.

### Detailed Description of the Inventions

Figure 1 illustrates a container 10, a container cap 12 releasably attached to an opening in the container 10, an illuminated shaft 14 attached to the container cap 12, and bubble forming attachments 16 attached to the ends of the illuminated shaft. Together the shaft 14 and any bubble forming attachment or attachments 16 comprise an illuminated bubble wand assembly 18.

The container 10 is a bottle, cylinder, or other container that defines a reservoir capable of holding bubble solution. The container may be transparent so that the illuminated shaft

14 is directly visible through the container. Alternatively, the container 10 may be opaque or incorporate a decorative design. With such a configuration, the illuminated bubble wand assembly 18 may serve to illuminate the entire container in an aesthetically pleasing way such that the entire container is aglow. The container cap 12 may be a screw on cap, flip cap, or other releasably secured cap configuration.

The illuminated shaft 14 and bubble forming attachment or attachments 16 comprise the illuminated bubble wand assembly 18. The assembly may be sized and proportioned to fit inside the bubble solution container. The illuminated bubble wand assembly 18 is free to float within the container. The illuminated bubble wand assembly can be packaged and sold together with the container or separately.

The bubble solution may be any bubble forming liquid or concentrate, soap, or other liquid solutions that generate bubbles. Alternatively, the bubble solution may be a glow in the dark bubble solution that is illuminated with the use of the illuminated light wand. The bubble solution may further comprise a bubble solution with a sufficient amount of fluorescent agent to provide illumination of the bubble solution when viewed under the illuminated light wand shaft. The bubble solution may be activated by the light source in the wand or alternatively by a Chemi-luminescent light source.

The illuminated bubble wand assembly 18 may be illuminated by any standard illumination method where multiple uses are desired. For example, the illumination may be accomplished by a switch LED, battery activated LED, or motion activated LED. Additionally, the illumination source may be mechanically activated by a twistable activated or rotatably activated LED. In this configuration, the LED would be activated upon

application of force by the user. The LED would require the application of force initiate the illumination of the bubble wand. The light source 19 can be placed anywhere within the assembly, either within the illuminated shaft 14 or the bubble forming attachments 16. Alternatively, one skilled in the art can recognize other means of activating the illumination source that are appropriate and capable of being contained within the small shaft.

In Figure 2, one end of the wand assembly is attached to the container cap 12 and the light source 19 is embedded therein. The wand may be permanently or releasably attached to the container cap. For example, the container cap may be fitted with a receiving bore such that the wand assembly may be secured to the receiving bore. The bubble forming attachment may be of any desired form. It may comprise a loop or ring. Alternatively, it may comprise any ornamental shape that would hold a child's interest. This includes hearts, animals, cartoons, animals, patterns, letters, or other attractive representations. The desired attachment shape desirably has a void section. This allows a thin film of bubble solution to be captured in the void section of the bubble forming attachment such that the application of air flow through the void generates bubbles.

Figure 3 illustrates a container 10 with an illuminated bubble wand shaft that protrudes a distance from the container of the cap. In this configuration, the illuminated bubble wand shaft 14 projects at least a certain distance from the container cap. The container cap 12 contains an aperture 13 that can accommodate for the shaft of the bubble wand to project through it with an embedded light source 19 therein. A resilient seal prevents leakage of the bubble solution from the aperture. The

projecting illuminated bubble wand serves as a means for locating the entire container when misplaced. Alternatively, the projecting shaft may serve as a handle for transporting the container.

5        Figure 4 illustrates a bubble wand wherein the shaft of the wand comprises a luminescent light stick. The luminescent shaft 14 is formed of a closed loop tube 20 containing two liquid chemicals, separated by a frangible divider 22. The tube 20 is generally rigid. However, application of a sufficient amount of  
10    force allows the tube 20 to break a divider 22 contained within the tube. This allows chemicals contained within the tube 20 to break the divider, permitting the chemicals to mix and thereby produce Chemi-luminescent light. Chemi-luminescent light technology is covered by Cyanamid in technology disclosed in  
15    U.S. Pat. Nos. 3,597,362 and 3,539,794. By breaking the divider, the shaft 14 is illuminated for use by a child. The use of a Chemi-luminescent light source results in a single use illuminated bubble wand. A bubble wand comprised of a Chemi-luminescent light source does not require that it be contained  
20    within the reservoir at the time of purchase by a user. The Chemi-luminescent bubble wand may be purchased separate from the bubble solution container and used as a replacement wand or merely an alternative wand assembly when desired by the user. The Chemi-luminescent bubble wand illumination life span is  
25    finite and these wands may be continuously replaced. The use of the Chemi-luminescent bubble wand may also provide a source of illumination where illuminated bubble solution is used. This type of bubble solution is activated to glow upon the introduction of the Chemi-luminescent light source. The Chemi-luminescent light source provides a sufficient amount of  
30    fluorescent agent to provide illumination of the bubble solution.

As an alternative option, 2 or 3 dimensional toys or objects 24 may be releasably secured to the top of the container cap 10 or to the shaft 14 of the bubble wand. These objects or toys would have to be sized and dimensioned small enough to fit  
5 between the opening of the container. The objects would be rotatably attached by means of a small loop on the bottom of each object. Each figure may have multiple holes disposed through it in order to allow a thin film of the bubble forming solution to pass through and generate bubbles through the object  
10 itself.

Thus, while the preferred embodiments of the devices and methods have been described in reference to the environment in which they were developed, they are merely illustrative of the principles of the inventions. Other embodiments and  
15 configurations may be devised without departing from the spirit of the inventions and the scope of the appended claims.